



# IDAHO DEPARTMENT OF HEALTH & WELFARE

Bureau of Environmental Health and Safety

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## FACTS ABOUT RADON

### **What is radon?**

Radon is a radioactive gas that comes from the natural breakdown of uranium found in most rocks and soil. In some cases, well water may be a source of radon. You cannot see it, smell it or taste it. Outdoors, radon mixes with fresh air and is usually diluted to low levels.

However, once inside an enclosed building, such as a home or school, radon can build up to high levels. The amount of radon indoors depends on how easily the radon can travel through the soil (permeability), how the building is constructed, and the amount of radon in the soil underneath the building.

Radon can be found all over the U.S., in old and new homes, and in homes with and without basements.

### **How does radon enter a home?**

Since radon is a gas, it can move up through the ground and enter buildings through cracks and holes in the foundation. Normal pressure differences between the house and the soil can create a slight negative pressure (vacuum) in the home, which can draw radon gas from the soil into the building. Radon levels are generally highest in basements and ground-floor rooms that contact soil. Factors such as design, construction, and ventilation of the home can affect the pathways and forces that draw radon indoors.

### **What are the health risks associated with radon?**

Radon decays into radioactive particles known as radon decay products. These particles are easily inhaled and deposited in the lungs where they can damage sensitive lung tissue.

Breathing air with high levels of radon over long periods of time can increase the risk of lung cancer. At the present time, this is the only known health effect. There is no evidence that exposure to radon causes headaches, asthma, allergies, or other respiratory illnesses. *The Surgeon General has warned that, next to smoking, radon is the second leading cause of lung cancer in the U.S.* Smoking combined with exposure to radon is an especially serious health risk.

### **How can you tell if you have radon in your home?**

Because radon is odorless, colorless, and tasteless, the only way to know if you have a radon problem in your home is to test it. **Tests should be conducted in the lowest lived-in area of the house.** There are two types of tests available to measure radon: short term and long term. A short-term test takes from 2 to 90 days, and is the quickest way to determine your radon level. Examples of short-term tests are charcoal canisters, continuous radon monitors, and electret ion chambers. A long-term test takes more than 90 days. Examples of long-term tests are alpha tracks, and electret ion chambers. A long-term test will give a reading that is more likely to indicate your home's average radon level throughout the year. However, if you need results quickly, a short term test followed by a second short-term test may be used to decide whether to fix your home. Whichever test you decide to use, be sure that it has been approved by the National Environmental Health Association (NEHA). For information on testing companies in your area or locations where you can purchase a test kit, contact the Idaho Radon Hotline at 1-800-

445-8647 or visit our website at  
[www2.state.id.us/dhw/BEHS/behs\\_frame.htm](http://www2.state.id.us/dhw/BEHS/behs_frame.htm)

### **When should a radon problem be fixed?**

Because no level of radon is considered absolutely safe, radon levels in a home should be reduced as much as possible. The amount of radon in the air is measured in picoCuries per Liter of air, or pCi/L. The EPA recommends fixing your home if the results of one long-term test or the average of two short-term tests taken in the lowest lived-in area of the home show radon levels of 4 pCi/L or higher. The higher the radon level, the more quickly you should have your home fixed.

### **How can you lower the radon level in your home?**

EPA recommends that you have a qualified contractor fix your home. However, if you want to do the work yourself, please call the radon Hotline number to obtain a copy of EPA's technical assistance document. There are several methods that a contractor can use to lower radon levels in your home. Some techniques prevent radon from entering your home, while others reduce radon levels after it has entered. EPA generally recommends methods that prevent radon entry. These systems use a pipe to remove radon gas from below the concrete floor and the foundation before it can enter the home.

If you live in an area with high radon levels and are building a new home, you should consider installing radon-resistant construction features. It is more cost-effective to include these features while building a home, rather than fixing an existing home. The cost to install a radon reduction system during new construction ranges between \$350-\$500, compared to \$800-\$2500 in an existing home. For a list of radon mitigators in your area call the radon hotline or visit our website at [www2.state.id.us/dhw/BEHS/behs\\_frame.htm](http://www2.state.id.us/dhw/BEHS/behs_frame.htm)

### **What about radon in water?**

Radon entering the home through water will in most cases be a small source of risk as compared to radon entering the home through soil. While radon in water is not a problem in homes served by most public water supplies, it has been found in well water. For more information on radon in water visit [www.epa.gov/safewater/radon/qa.html](http://www.epa.gov/safewater/radon/qa.html).

### **What is the extent of the radon problem in Idaho?**

Several studies have been done to determine radon levels in Idaho and different results have been found each time. In 1985 and 1986, state and local health officials screened 1,018 homes for radon. Approximately one-third of the homes had radon levels greater than 4 pCi/L. The statewide average was 4.6 pCi/L. In 1989 and 1990, Idaho and EPA conducted a joint survey intended to be more representative of the entire state. A two-day charcoal canister test was used by 1,142 homeowners. The results, received in January 1992, indicated that more than 20 percent of the homes in Idaho had levels of radon greater than 4 pCi/L, and the average level in Idaho was 3.3 pCi/L, slightly higher than the national average of 1.3 pCi/L. Since 1990, the state radon project has been tracking the number of tests reported in Idaho. As of June 2001, 3,584 homes have reported results to the project. Thirty three percent of those were above 4.0 pCi/L, with a state average of 6.0 pCi/L.

It is difficult to predict which homes may have high radon levels. Homes built side by side, on the same soil or rock, or with similar designs, can have very different radon levels. Therefore, it is recommended that all homes be tested.

For additional information, please call the Idaho Radon Hotline at 1-800-445-8647.